

ABSTRACT

The Effect of Areca Seed Extract (*Areca catechu L.*) on the growth of *Salmonella typhi* bacteria *in vitro*

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Introduction: Recently, the incidents of *Salmonella typhi* infection in Indonesia increases. It causes symptoms such as diarrhea and typhoid fever. Appropriate empirical antibiotics in patients with this infection is essential to prevent complications and to reduce mortality, but somehow *Salmonella typhi* becomes resistant easily against antibiotics like cotrimoxazole, ampicillin and chloramphenicol. Areca seeds (*Areca catechu L.*), which is commonly found in Indonesia, contains antibacterial agents for eradicating *Salmonella typhi*. Therefore, researchers examined the benefit of its extract against *Salmonella typhi* as an alternative for treating infections caused by *Salmonella typhi*. This study was performed to test the antibacterial activity of Areca seeds against *Salmonella typhi*.

Methods: This study was an experimental study, which was conducted in the laboratory. The sample of this study was *Salmonella typhi*. The sample was tested and obtained from Microbiology Laboratory of Medical Faculty Airlangga University. Antibacterial activity test was performed to evaluate the minimum inhibitory concentration (MIC) using the broth dilution method of Areca seed extract (*Areca catechu L.*) at the concentration of 100%; 50%; 25%; 12,5%; 6,25%; 3,125%; and 1,6%. The minimum bactericidal concentration (MBC) were determined by plating tube suspension from broth dilution test on *MacConkey agar plate*.

Results: Growth of *Salmonella typhi* could not be evaluated in Mueller Hinton Agar Broth due to extract turbidity. In the first and second repetition, the colony of *Salmonella typhi* was not found on *MacConkey agar plate* at the concentration of 100%, 50%, 25%, 12,5% and 6,25%, but was found on other *MacConkey agar plate* at the concentration of 3,125% and 1,6%. In the third and fourth repetition, growth of *Salmonella typhi* was not found on *MacConkey agar plate* at the concentration of 100%, 50%, 25% and 12,5% only, but was found on other *MacConkey agar plate* at the concentration of 3,125%, 1,6% and 6,25% due to contamination.

Conclusion: There is an antibacterial activity in Areca Seed against the growth of *Salmonella typhi* with minimum bactericidal concentration on 6,25% and 12,5%, therefore the mean minimum bactericidal concentration is on 9,375%.

Keywords: *Salmonella typhi* – *Areca catechu L.* – antibacterial – dilution test